

Operating Instructions

Cable Glands Ex d and Ex e with Compound

> 8163/2-PX2K



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2 General Information

2.1 Manufacturer







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2.2 Information regarding the Operating Instructions

ID NO.: 139004 / 816360300200
Publication Code: S-BA-8163/2-PX2K-02-en-07/08/2008
We reserve the right to make technical changes without notice.


2.3 Symbols Used

	Action prompt: Describes actions to be carried out by the user.
	Reaction symbol: Describes the results or the reactions to the actions taken.
	Bullet
	Information symbol: Describes the notes and recommendations.
	Warning sign: Danger from energised parts!
	Warning sign: Danger due to an explosive atmosphere!

3 General Safety Information

3.1 Safety Instructions for Assembly and Operating Personnel

The operating instructions contain basic safety instructions which are to be observed during installation, operation and maintenance. Failure to observe these instructions can place persons, plant and the environment at risk.

 WARNING
Risk due to unauthorised work on the device! ▷ Risk of injury and damage to equipment. ▶ Assembly, installation, commissioning and servicing work must only be performed by personnel who are both authorised and suitably trained for this purpose.

Before assembly/commissioning:

- ▶ Read through the operating instructions.
- ▶ Give adequate training to the assembly and operating personnel.
- ▶ Ensure that the contents of the operating instructions are fully understood by the personnel in charge.
- ▶ The national installation and assembly regulations (e.g. IEC/EN 60079-14) apply.

When operating the components:

- ▶ Ensure the operating instructions are made available on location at all times.
- ▶ Observe safety instructions.
- ▶ Observe national health and safety regulations.
- ▶ Servicing/maintenance or repair work which are not described in the operating instructions must not be performed without prior agreement with the manufacturer.
- ▶ Any damage may render explosion protection null and void.
- ▶ Any alterations and modifications to the component impairing its explosion protection are not permitted.
- ▶ Install and use the component only if it is undamaged, dry and clean.

If you have questions:

- ▶ Contact the manufacturer.

3.2 Warnings

Warnings are sub-divided in these operating instructions according to the following scheme:

 WARNING
Type and source of the danger! ▷ Possible consequences. ▶ Measures to avoid danger.

They are always identified by the signal word "WARNING" and sometimes also have a symbol which is specific to the danger involved.

3.3 Conformity to Standards

The cable glands comply with the following regulations and standards:

- ✗ Directive 94/9/EC
- ✗ IEC/EN 60079-0, IEC/EN 60079-1, IEC/EN 60079-7, IEC/EN 60079-15
- ✗ IEC/EN 61241-0, IEC/EN 61241-1

4 Designated Use

The cable gland is used to introduce permanently installed cables into electrical equipment of type of protection Increased Safety "e", Flameproof Enclosure "d", Restricted Breathing "nR" and Protection by Enclosure "tD". It provides an inner, explosion-protected compound seal for the individual cable cores and ambient sealing for the cable outer sheath. The cable gland provides an electrical connection via the armour termination.

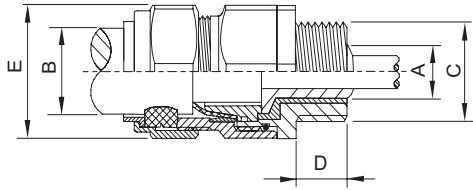
It is approved for use in hazardous areas of zones 1, 2, 21 and 22.

⚠ WARNING	
Only use the component for its intended purpose!	
▷	Otherwise, the manufacturer's liability and warranty will be rendered void.
▶	Only use the component under the operating conditions described in the operating instructions.
▶	The component must be used in hazardous areas only according to these operating instructions.

5 Technical Data

Explosion protection	
ATEX	
Zone 1 / 21	⊕ II 2 GD Ex d IIC / Ex e II / Ex tD A21 IP66
Zone 2	⊕ II 3 G Ex nR II
IECEx	
Zone 1 / 21	Ex d IIC / Ex e II / Ex tD A21 IP66
Zone 2	Ex nR II
Certificates	
ATEX	
Zone 1 / 21	SIRA 06 ATEX 1188 X
Zone 2	SIRA 07 ATEX 4327 X
IECEx	IECEx SIR 06.0080 X
Type of Protection	IP66, IP67 & IP68 (10 m depth)
Version	BS 6121, EN 50262
Operating temperature range	- 60 °C ... + 100 °C
Material	
Gland	Brass, nickel-plated brass, stainless steel
Seal	SOLO LSF

Dimensional drawings (all dimensions in mm) - subject to alterations



07596E00

Gland size	Dimensions [mm]						Armour wire thickness		
	Thread size C	Inner sheath A	Max. no. of cores	Outer sheath B		Thread length D	Across corners E	Grooved cone	Plain cone
		max.		min.	max.				
20s/16	M20 x 1.5	12.6	15	6.1	11.5	15	33.3	0 ...1.0	0.90 ...1.00
20s	M20 x 1.5	12.6	15	9.5	15.9	15	33.3	0 ...1.0	0.90 ...1.25
20	M20 x 1.5	12.6	15	12.5	20.9	15	33.3	0 ...1.0	0.90 ...1.25
25s	M25 x 1.5	17.5	29	14.0	22.0	15	40.5	0 ...1.0	1.25 ...1.60
25	M25 x 1.5	17.5	29	18.2	26.2	15	40.5	0 ...1.0	1.25 ...1.60
32	M32 x 1.5	23.6	51	23.7	33.9	15	51.3	0 ...1.0	1.60 ...2.00
40	M40 x 1.5	30.0	80	27.9	40.4	15	61.0	0 ...1.0	1.60 ...2.00
50s	M50 x 1.5	36.6	122	35.2	46.7	15	66.5	0 ...1.0	2.00 ...2.50
50	M50 x 1.5	41.0	149	40.4	53.1	15	78.6	0 ...1.0	2.00 ...2.50
63s	M63 x 1.5	47.9	205	45.6	59.4	15	83.2	0 ...1.0	2.00 ...2.50
63	M63 x 1.5	53.7	259	54.6	65.9	15	89.0	0 ...1.0	2.00 ...2.50
75s	M75 x 1.5	59.9	320	59.0	72.1	15	101.6	0 ...1.0	2.00 ...2.50
75	M75 x 1.5	64.3	364	66.7	78.5	15	111.1	0 ...1.0	2.00 ...2.50

6 Transport, Storage and Disposal

Transport

- Shock-free in its original carton, do not drop, handle carefully.


Storage

- Store in a dry place in its original packaging

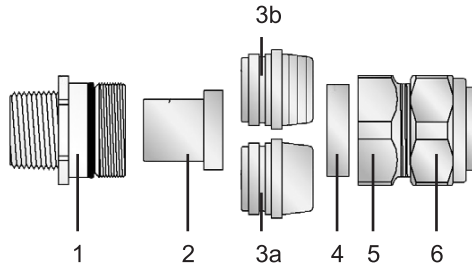
Disposal

- Ensure environmentally friendly disposal of all components according to legal regulations.

7 Assembly

 We recommend the usage of a sealing ring between the enclosure wall and the male union.

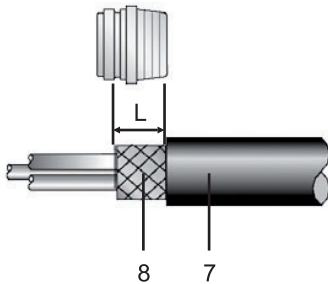
Overview



07600E00

- 1 Male union
- 2 Sealant tube
- 3a Smooth cone for wire armour cable (SWA)
- 3b Grooved cone for strip and tape armour as well as braid cable
- 4 Armour sleeve
- 5 Adapter
- 6 Union nut

Preparing installation

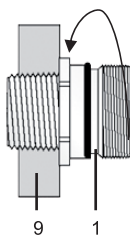


07601E00

- Remove the cable outer sheath (7) and uncover the armour (8) and according to the device geometry.
- Uncover armour over a length "L" (see table below).

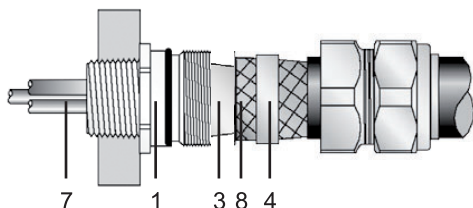
Gland size	Length "L"
20S/16, 20S, 20	12 mm
25S, 25, 32, 40	15 mm
50S, 50, 63S, 63	18 mm
75S, 75, 90	20 mm

Installation



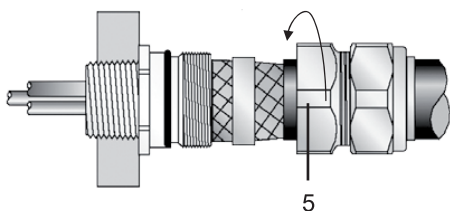
07605E00

- If necessary insert male union (1) into sealing ring.
- Screw male union (1) into enclosure (9).



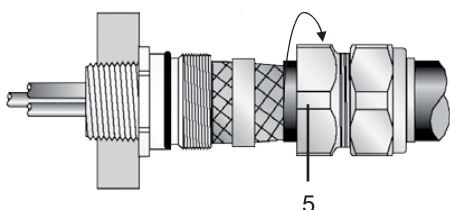
07604E00

- Plug the cone (3) in correct position and according to the armour type into the male union (1).
- Push cable (7) through male union (1).
- Slide the armour (8) over the cone.



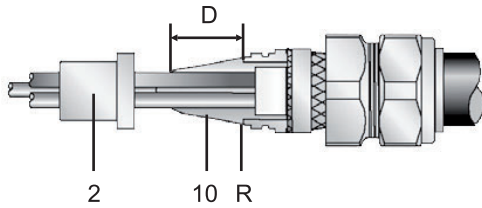
07603E00

- Screw adapter (5) into male union.
- ▷ Armour is fixed to cone.



07602E00

- Unscrew adapter (5) from male union.



07623E00

- ▶ Remove any coatings, fillers or tapes that protrude beyond the point "R".
- ▶ If the armour comprises individual wires, secure single wire armour with heat-shrink sleeve or connect single wire armour to an insulated conductor.

Securing single wire armour with heat-shrink sleeve

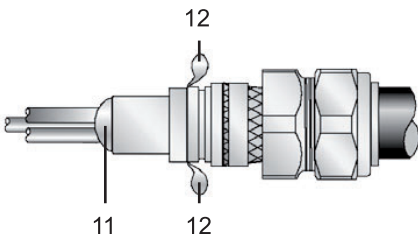
- ▶ Apply sealant over a length of 6 mm inside the cable.
- ▶ Push heat-shrink sleeve (min. 100 mm) over the armour until it is against the sealant.
- ▶ Carefully shrink heat-shrink sleeve onto the armour depending on type.
- ▶ Ensure no air is trapped.

Connecting single wire armour to an insulated conductor

- ▶ Uncover a further 15 mm of the outer sheath.
- ▶ Open armour and splice with a screen conductor.
- ▶ If necessary, shorten individual wires.
- ▶ Crimp an insulated conductor to the screen conductors with an insulated crimp sleeve or solder.
- ▶ Ensure the insulated conductor is long enough to reach the earthing point in the enclosure.
- ▶ Ensure there is at least 10 mm of sealant before and after the crimp connection.

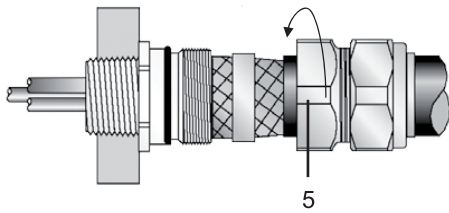
Applying sealant

- ▶ Separate conductors.
- ▶ Apply sealant (10) between the conductors.
- ▶ Push conductors together again.
- ▶ Apply sealant around the conductors and in the cone.
- ▶ Ensure the sealant is applied over a length "D" of at least 20 mm.
- ▶ Ensure the amount of sealant reduces toward the sealant tube (2).
- ▶ Push sealant tube (2) over sealant until it is in full contact with the cone.



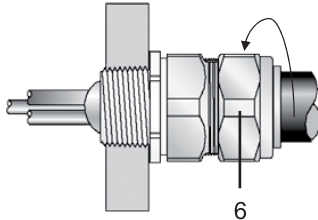
07622E00

- ▶ Fill the end (11) of the sealant tube with sealant.
- ▶ Remove excess sealant (12).



07603E00

- Screw adapter (5) into male union.



07603E00

- Tighten the union nut (6).
- Install the cable in the enclosure.

8 Commissioning

Before commissioning the device with the cable gland, make sure that

- ✗ the cable gland is not damaged.
- ✗ if necessary the sealing ring is present and mounted correctly.
- ✗ unused holes are sealed by stopping plugs certified to Directive 94/9/EC.
- ✗ the cables have been inserted correctly.
- ✗ the bearing surfaces for the cable gland (sealing ring) are flat.

9 Maintenance

- Consult the relevant national regulations (e.g. IEC/EN 60079-17) to determine the type and extent of inspections.
- Plan the intervals so that any defects in the equipment which may be anticipated are promptly detected.

Check during maintenance:

- ✗ Compliance with the permitted temperatures in accordance with IEC/EN 60079-0.
- ✗ the cable glands for cracks.
- ✗ the seals for damage.

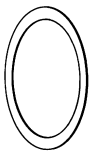
10 Accessories and spare parts


⚠ WARNING

Use of non-approved accessories and spare parts.

▷ The manufacturer's liability and warranty will be rendered void.

▶ Use only original accessories and original spare parts manufactured by R. STAHL.

Designation	Illustration	Description				Order number	Weight kg
PVC shroud		Designation	Gland size	Across flats	Across corners		--
		HV04	20S/16 or 20S	24	26.6	109076	0.017
		HV06	20	30.5	33.3	109078	0.024
		HV09	25S or 25	37.5	40.5	109080	0.033
		HV11	32	46	51	109082	0.040
		HV15	40	55	61	109084	0.070
		HV18	50S	60	66.5	109085	0.075
		HV21	50	70	78.6	109086	0.230
		HV23	63S	75	83.2	109094	0.117
		HV25	63	80	89	109096	0.158
		HV28	75S	89	101.6	109099	0.460
		HV30	75	99	111.1	109101	0.400
Sealing ring	 04968T00	Thread size	Minimum thickness	Outer diameter			--
		M16	2.0	25.4		167668	0.001
		M20	2.0	28.6		111778	0.001
		M25	2.0	35.0		111779	0.001
		M32	2.0	44.5		111780	0.001
		M40	2.0	50.8		167671	0.001
		M50	2.0	65.0		167672	0.001
		M63	2.0	76.2		167673	0.001
		M75	2.0	95.0		167674	0.001

Designation	Illustration	Description	Order number	Weight kg
Lock nut	 05865E00	To fasten the cable glands in through holes For cable glands		--
		Type Thread size Packing unit		
		Brass, nickel-plated M16 x 1.5 50	138383	0.135
		Brass, nickel-plated M20 x 1.5 50	138389	0.241
		Brass, nickel-plated M25 x 1.5 50	138395	0.348
		Brass, nickel-plated M32 x 1.5 25	138401	0.267
		Brass, nickel-plated M40 x 1.5 10	138407	0.218
		Brass, nickel-plated M50 x 1.5 4	138413	0.109
		Brass, nickel-plated M63 x 1.5 1	138418	0.054
		Brass nickel-plated M 75 x 1.5 1	110877	0.151

11 Type Examination Certificate (Page 1)



SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 06ATEX1188X
Issue 2

iv) 8163/2-****-PX****-** series-Type ranges of Compound filled barrier cable glands

Coded:		II 2 GD	or		I M2
		Ex d IIC/Ex e II			Ex d I/Ex e I
		Ex d IIC	for PXSS2K		Ex d I
		Ex e II	range ONLY		Ex e I
		Ex tD A21 IP66			

The 8163/2-****-PX****-** series Type ranges of barrier cable glands consist of a male-threaded front entry component, fitted with a compound tube such that a spigot/combination joint is formed, which is intended to screw into an entry point of its associated enclosure in accordance with relevant codes of practice. The compound tube contains Cedesa EP2122 setting compound that effects a flameproof seal around the cable cores passing through it and is retained by a spacer. The front entry component to main body mating thread may be fitted with an optional 'O' ring seal to provide increased ingress protection. Clamping of the armour or braid is effected by a combination of the front entry component assembly and the different optional armour cone and reversible sleeve combinations within the main body being fastened together. An outer seal nut, containing an Evoprene Super G621 elastomeric displacement sealing ring and a Nylon 6 ferrule, threads onto the main body and effects environmental sealing onto the cable outer sheath.

Cable clamping is achieved with the outer seal arrangement.

Additional Specific Design options

- The use of alternative armour clamping components specified by the cable gland type designation. The various arrangements vary the cable gland suitability for differing armour or braided type cables.
- Alternative material of manufacture of the ferrule to be the same as the gland material.
- The removal of the ATEX outer seal, nut and ferrule, along with the body component manufactured without the external mating thread. The cable gland being suitable for S.W.A armoured cables and is identified within type designation coding.
- The use of the compound tube and spacer along with the manufacture of the front entry component with a female mating thread, to couple to an alternative main body, skid washer, seal and nut. The latter replacing other component parts. This variant being identified within type designation coding.

The gland and seal sizes are determined by the entry thread and cable range take sizes. In addition note that not all the information detailed in the table is applicable to both gland types. See individual approval drawings.

This certificate and its schedules may only be reproduced in its entirety and without change.

Form 9400 Issue1

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Sira Certification Service

Rake Lane, Eccleston, Chester, CH4 9JN, England

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Fax: +44 (0) 1244 681330
Email: info@siracertification.com
Web: www.siracertification.com





1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 07ATEX4327X** Issue: **2**

4 Equipment: **Ranges of Cable Glands (See Descriptions)**

5 Applicant: **R. STAHL Schaltgeräte GmbH**

6 Address: Am Bahnhof 30
74638 Waldenburg (Württ)
Germany

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2004
EN 60079-15:2003

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 3 G
Ex nR II

Project Number 51M16472
C. Index 07

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D R Stubbings BA MIET
Certification Manager

Form 9400 Issue 1

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Sira Certification Service

Rake Lane, Eccleston, Chester, CH4 9JN, England

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Konformitätserklärung
Declaration of Conformity
Déclaration de Conformité



R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany
erklärt in alleiniger Verantwortung, declares in its sole responsibility, déclare sous sa seule responsabilité,

dass das Produkt:
that the product:
que le produit:

Kabel- und Leitungseinführung
Cable glands
Entrée de cable


Typ(en), type(s), type(s):

8163/2-....-....

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) Directive(s) Directive(s)	Norm(en) Standard(s) Norme(s)
94/9/EG: ATEX-Richtlinie 94/9/EC: ATEX Directive 94/9/CE: Directive ATEX	EN 60079-0:2012 EN 60079-1:2007 EN 60079-7:2007 EN 60079-31:2009

Kennzeichnung, marking, marquage:

II 2 G Ex d IIC Gb
II 2 G Ex e IIC Gb
 II 2 D Ex tb IIIC T 80°C Db
I M2 Ex d I Mb
I M2 Ex e I Mb

CE 0158

EG-Baumusterprüfbescheinigung:
EC Type Examination Certificate:
Attestation d'examen CE de type:

Sira 06 ATEX 1188 X
(Sira Certification Service,
Rake Lane, Eccleston, Chester, CH4 9JN, England, NB0518)

Produktnormen nach Niederspannungsrichtlinie:
Product standards according to Low Voltage Directive:
Normes des produit pour la Directive Basse Tension:

EN 50262:1998 + A1:2001 + A2:2004

2004/108/EG: EMV-Richtlinie
2004/108/EC: EMC Directive
2004/108/CE: Directive CEM

Nicht zutreffend nach Artikel 1, Absatz 3.
Not applicable according to article 1, paragraph 3.
Non applicable selon l'article 1, paragraphe 3.

Sonstige Normen:
Other Standards:
Autres normes:

BS 6121:1989

Spezifische Merkmale und Bedingungen für den Einbau siehe Betriebsanleitung.
Specific characteristics and how to incorporate see operating instructions.
Caractéristiques et conditions spécifiques pour l'installation voir le mode d'emploi.

Waldenburg, Datum

Ort und Datum
Place and date
Lieu et date


Steffen Buhl
Leiter Entwicklung Schaltgeräte
Director R&D Switchgear
Directeur R&D Appareillage


J.-P. Rückgauer
Leiter Qualitätsmanagement
Director Quality Management
Directeur Assurance de Qualité

